

REMARKS

This is in response to the office action mailed November 3, 2006. A Petition for an extension of time together with payment accompanies this response.

Claims 6 to 8 are now in this application. It is submitted that the previous amendments to the claims place the application in order for allowance.

Claims 6 to 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betz in view of Constantine and the admitted prior art. Claim 8 is rejected as above further in view of Johnston.

Constantine teaches gravity feeding of water to the emulsifying unit whereas the fuel is supplied by means of fuel feed pump to the same emulsifying unit. The primary needs for priming of a fuel feed pump are, (1) Optimum pressure and (2) Means to ensure free flow of fuel to the fuel feed pump. Thus, the gravity feed system as taught by Constantine would not satisfy the necessary condition for the priming of fuel feed pump.

Betz teaches a system in which a mechanically openable check

valve is introduced at the inlet of the fuel injection pump in conjunction with an air vent to reverse prime the system and release locked air from fuel system. This necessarily requires manual opening of valve for releasing air and prime the system. Further the check valve needs to be manually closed after bleeding of air. Deviation from the requirement of manual opening and closing would lead to variation in the fuel system pressure which would negatively impact engine performance.

It is therefore desirable to automate the system so that the above requirements are met without the need for any manual intervention.

The system disclosed by Betz does not in any manner teach such an option.

A mere combination of gravity feed system as taught by Constantine and manually operated vapor vent as taught by Betz will not provide solution of self air bleeding as well as priming of the fuel system because of,

(1) The combined system will require manual reverse priming.

(2) The combined system will also require manual intervention for bleeding air from the system by operating

mechanically openable check valve.

(3) The combination as described above will require additional mechanism to bleed air that is trapped in fuel system (including filters and fuel lines etc).

Johnston teaches venting of fuel vapor through the vapor orifice passage in valve disc which restricts the flow of liquid fuel.

Hence, combining the teachings of Constantine and Betz with that of Johnston will not lead to the solution of the problem i.e. self air bleeding from fuel supply system and priming the fuel feed pump.

The present invention (Application number 10/682,375) precisely addresses the issue of self air bleeding from fuel supply system and priming the fuel feed pump.

In the disclosed system, following are the essential constructional features that solves the identified problems,

(1) Sequencing of fuel supply system components appropriately to ensure priming of the system;

(2) Positioning of air vent at the outlet of fuel injection pump (in banjo bolt) to enable self air bleeding through entire

fuel supply system;

(3) Optimizing the features of the air vent to ensure minimum variation of operating pressure in fuel supply system;

(4) Providing means for self air bleeding and priming of fuel feed pump without any manual intervention.

We had conducted various experiments to arrive at the optimized set of conditions under which the above desirable features were arrived at. These are well documented.

Combinations other than what is disclosed in the specifications do not give the desired results.

The present invention as described in the specification and claims 6 to 8 is in no way obvious with respect to the teachings of Patent number US 5899193 (Betz), Patent number US 4416225 (Constantine), US 4231342 (Johnston).

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May 2, 2007

If the Examiner has any questions, he is invited to contact the undersigned at telephone number (818)710-2788.

Please acknowledge safe receipt of this correspondence by stamping and returning the enclosed postcard.

Respectfully submitted,



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Colin P. Abrahams

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